

# YAMAHA KX-W202/U

*Natural Sound Stereo, Double Cassette Deck*

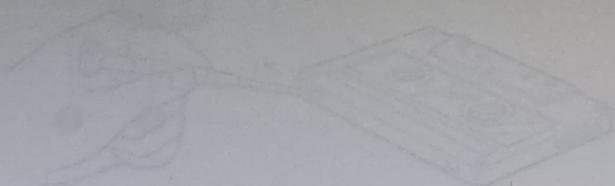
*Platine à double cassette de la série "Natural Sound"*

*"Natural Sound" Stereo-Doppelkassettendeck*

*"Natural Sound" Stereokassettdäck*

*Registratore a Doppia Cassette Stereo a Suono Naturale*

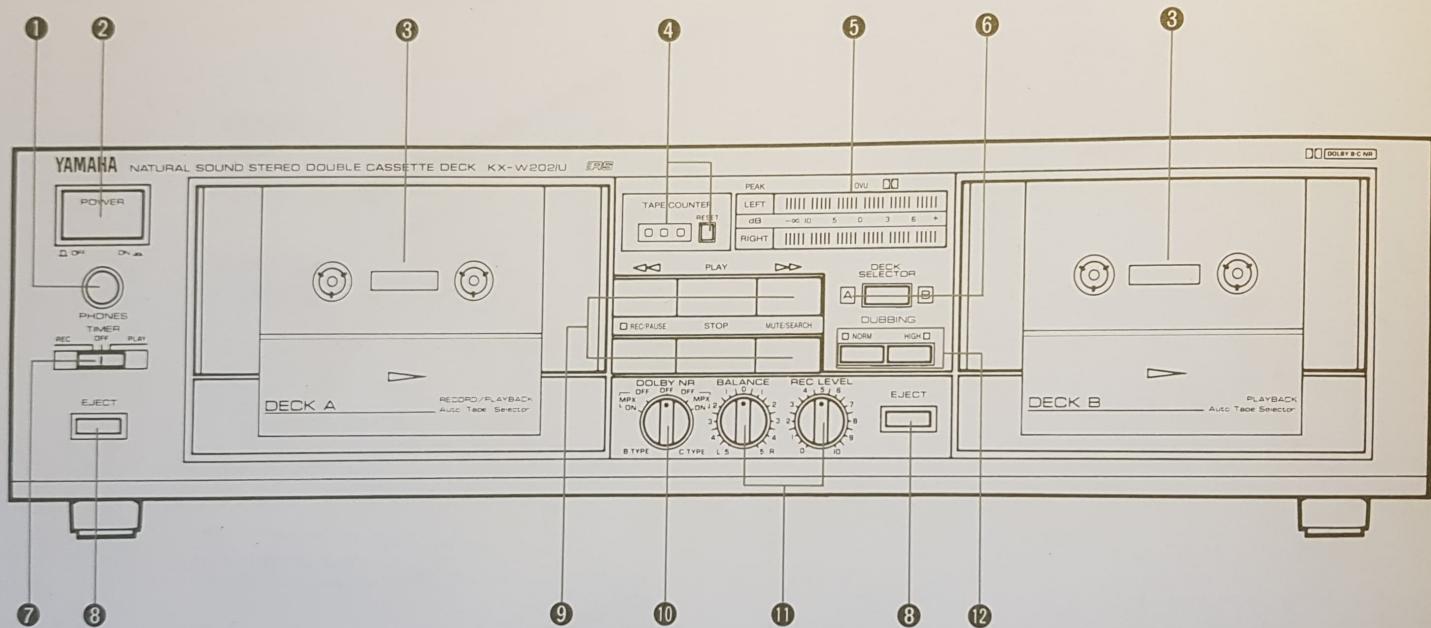
*Magnetófono estéreo de dos cassetes de sonido natural*



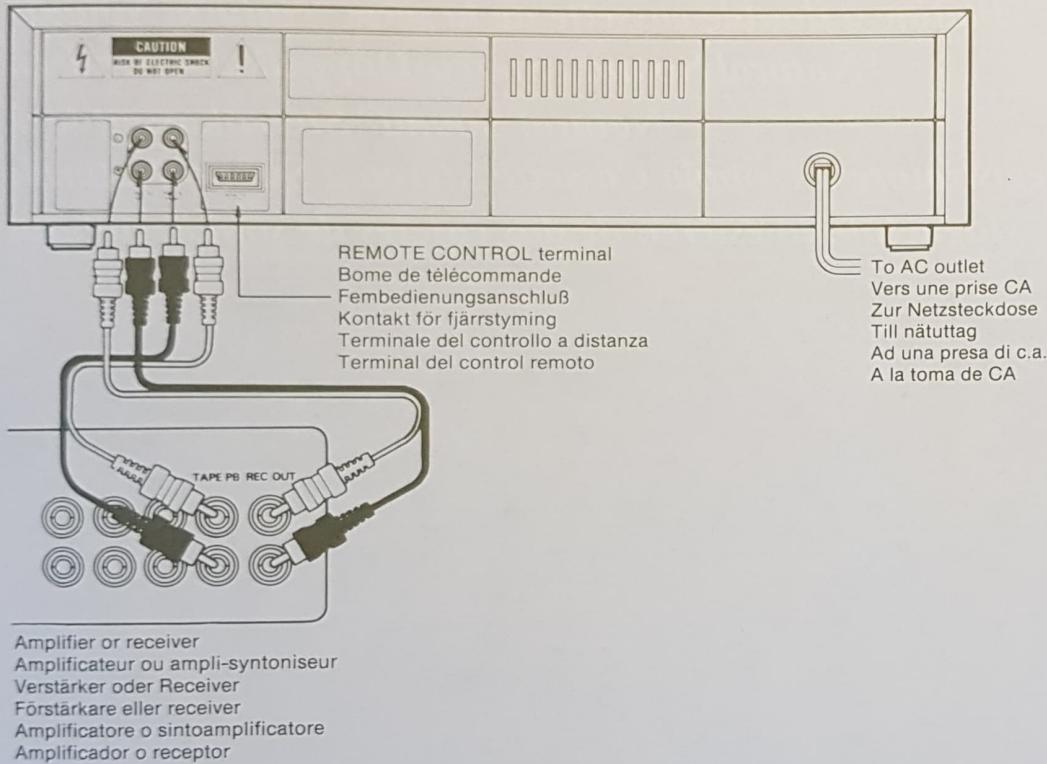
OWNER'S MANUAL  
MODE D'EMPLOI  
BEDIENUNGSANLEITUNG  
BRUKSANVISNING  
MANUALE DELL'UTENTE  
MANUAL DE INSTRUCCIONES

1 FRONT PANEL  
PANNEAU AVANT  
FRONTPLATTE

FRAMSIDA  
PANNELLO ANTERIORE  
PANEL DELANTERO



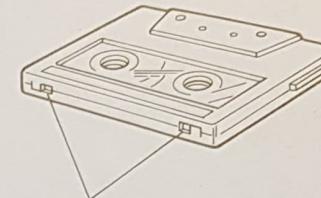
**2 REAR PANEL AND CONNECTIONS**  
**PANNEAU ARRIÈRE ET CONNEXIONS**  
**RÜCKPLATTE UND ANSCHLÜSSE**  
**BAKSIDA OCH ANSLUTNINGAR**  
**PANNELLO POSTERIORE E COLLEGAMENTI**  
**PANEL TRASERO Y CONEXIONES**



**3 DETECTOR SLOTS**  
**TROUS DE DETECTION**  
**ERKENNUNGSÖFFNUNGEN**

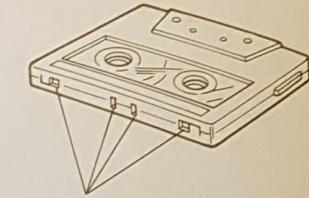
**AVKÄNNINGSHÅL**  
**FESSURE DI IDENTIFICAZIONE**  
**RANURAS DE DETECCIÓN**

TYPE II



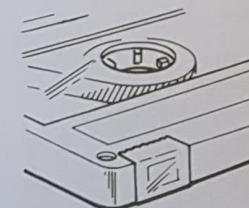
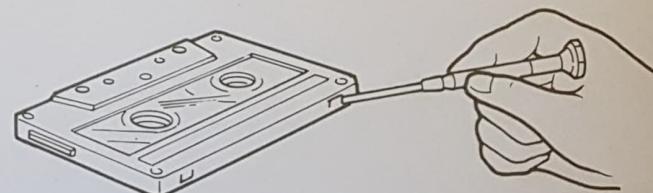
detector slots  
trous de detection  
Erkennungsöffnungen  
avkänningshål  
Fessure di identificazione  
ranuras de detección

TYPE IV

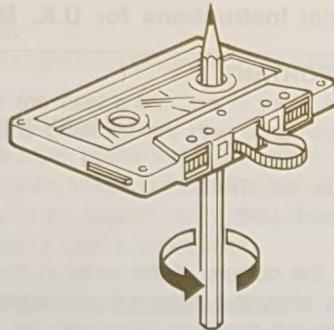


detector slots  
trous de detection  
Erkennungsöffnungen  
avkänningshål  
Fessure di identificazione  
ranuras de detección

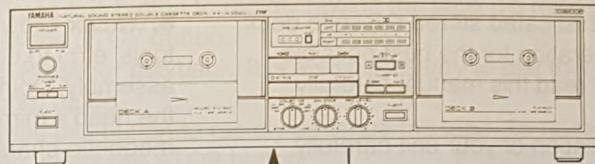
**4 RECORDING PROTECTION**  
**PROTECTION CONTRE L'ENREGISTREMENT**  
**AUFNAHMESCHUTZ**  
**INSPELNINGSSKYDD**  
**PROTEZIONE DELLA REGISTRAZIONE**  
**PROTECCIÓN DE GRABACIÓN**



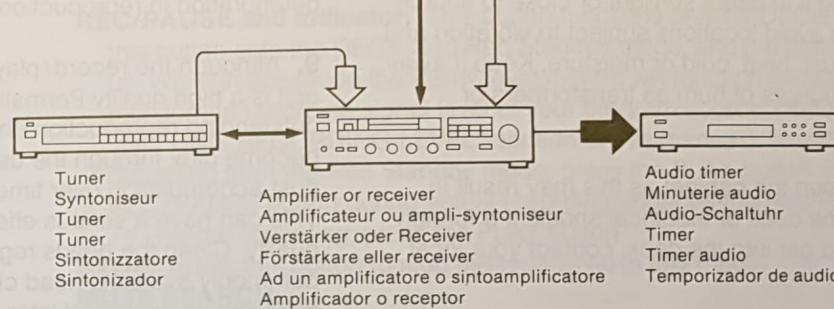
**5 TAPE SLACK**  
**RELACHEMEMENT DE LA BANDE**  
**LOSES BAND**  
**BANDSLINGA**  
**NASTRO ALLENTATO**  
**FLOJEDAD DE CINTA**



**6 TIMER CONNECTION**  
**CONNEXION DE LA MINUTERIE**  
**SCHALTUHR-ANSCHLUSS**  
**TIMERANSLUTNING**  
**COLLEGAMENTO DEL TIMER**  
**CONEXIÓN DE UN TEMPORIZADOR**



To AC outlet  
 Vers une prise CA  
 Zur Netzsteckdose  
 Till nätet  
 Ad una presa di c.a.  
 A la toma de CA



Tuner  
 Syntoniseur  
 Tuner  
 Tuner  
 Sintonizzatore  
 Sintonizador

Amplifier or receiver  
 Amplificateur ou ampli-syntoniseur  
 Verstärker oder Receiver  
 Förstärkare eller receiver  
 Ad un amplificatore o sintoamplificatore  
 Amplificador o receptor

Audio timer  
 Minuterie audio  
 Audio-Schaltuhr  
 Timer  
 Timer audio  
 Temporizador de audio

**10. REVERSE MODE** (For Canada Model)

FOR CANADIAN CUSTOMERS  
 THIS REVERSE MODE IS FOR USE IN CANADA ONLY.  
 THIS MODE IS NOT FOR USE IN THE U.S.A.  
 THE TAPE CAN BE RUN IN REVERSE.  
 PREVENT SLACK TAPE SOURCE.

**11. TAPE switch**

FOR CANADIAN CUSTOMERS  
 THIS MODE IS FOR USE IN CANADA ONLY.  
 THIS MODE IS NOT FOR USE IN THE U.S.A.  
 THE TAPE CAN BE RUN IN REVERSE.  
 PREVENT SLACK TAPE SOURCE.

**WARNING**  
 TO REDUCE THE RISK OF ELECTRIC  
 SHOCK DO NOT EXPOSE THIS APPARATUS TO  
 RAIN OR MOISTURE

- Thank you for purchasing the YAMAHA KX-W202/U stereo cassette deck.

## CAUTION: READ THIS BEFORE OPERATING YOUR UNIT.

1. This unit is a sophisticated stereo cassette deck. To ensure proper operation for the best possible performance, please read this manual carefully.
2. Choose the installation of your unit carefully. Avoid placing it in direct sunlight or close to source of heat. Also avoid locations subject to vibration and excessive dust, heat, cold or moisture. Keep it away from such sources of hum as transformers or motors.
3. Do not open the cabinet as this may result in damage to the deck or electrical shock. If a foreign object should get into the deck, contact your local dealer.
4. When removing the power plug from the wall outlet, always pull directly on the plug; never pull the cord itself.
5. Do not use force when operating switches and knobs.
6. When moving the deck, be sure to first pull out the power plug and remove all cords connecting the deck to other equipment.
7. Do not attempt to clean this unit with chemical solvents as this may damage the finish. Use a clean, dry cloth.

8. Never allow metallic items (e.g. screwdrivers, tools, etc.) to come near the record/playback head assembly. Doing so may not only scratch or damage the head's mirror-smooth finish, it may change the magnetic characteristics of the heads, causing a deterioration in reproduction performance quality.
9. Although the record/playback head used in this unit is a high quality Permalloy head with outstanding reproduction characteristics, it can become dirty through the use of old tapes or from dust accumulation over time. This can have a serious effect on reproduction quality. Clean the heads regularly with one of the commonly available head cleaners or with cleaning solutions as explained later in this manual.
10. Be sure to read the "Troubleshooting" section of this manual for advice on common operating errors before concluding that your unit is faulty.
11. Keep this manual in a safe place for future reference.
12. Voltage Selector (General Model only) The voltage selector on the rear panel of this unit must be set for your local mains voltage BEFORE plugging in the AC mains supply. Voltages are 110/120/220/240V AC, 50/60 Hz.

### WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

## Special Instructions for U.K. Model

### IMPORTANT

The wires in the mains lead are coloured in accordance with the following code:

Blue: NEUTRAL  
Brown: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

### CAUTION (FOR CANADA MODEL)

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

### FOR CANADIAN CUSTOMER

THIS DIGITAL APPARATUS DOES NOT EXCEED THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS FROM DIGITAL APPARATUS SET OUT IN THE RADIO INTERFERENCE REGULATION OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

## FRONT PANEL PARTS AND FUNCTION

(See Fig. 1.)

### ① PHONES jack

Connect a set of headphones to this jack for monitoring recording or playback.

### ② POWER switch

Press this switch to turn the power on. Press again to turn the power off.

### ③ Cassette compartments

To load a cassette tape, press the EJECT button and the cassette compartment will open. Insert a cassette with the exposed tape side facing down and the side to be played facing you. To close the compartment, push in the compartment door until it locks shut.

### ④ TAPE COUNTER and RESET button

Use the TAPE COUNTER as an aid in locating a point on a tape. Press the RESET button to set the TAPE COUNTER to "000".

### ⑤ PEAK level meters

Indicate the peak of the signal level during recording and playback over a range from  $-\infty$  dB to +6 dB.

### ⑥ DECK SELECTOR and indicators

Press this button to select the mode of the operation buttons. When A indicator located at the left of the button is lit, the operation buttons function for DECK A. When B indicator located at the right of the button is lit, the operation buttons function for DECK B.

### ⑦ TIMER switch

With a commercially available audio timer, set this switch to REC for timer recording, and to PLAY to timer playback. When the timer is not used, be sure to set this switch to OFF.

### ⑧ EJECT buttons

To load a cassette tape, press the EJECT button and the cassette compartment will open. Depress the cassette compartment to close it.

\* Be careful not to press the EJECT button while the tape is moving.

### ⑨ Operation buttons

First, select the deck to be operated, with the DECK SELECTOR, then operate the following buttons.

◀◀: Press this button to rapidly rewind the tape. To release the rewind mode, press the STOP button.

PLAY: Press for playback. It is also necessary to use this button to engage the Record mode.

▶▶: Press this button to rapidly advance the tape. To release the fast forward mode, press the STOP button.

REC/PAUSE and indicator: This button functions only for DECK A. Pressing this button sets the DECK A to Rec Standby mode, and the indicator lights up. While in this mode the PEAK level meters will function allowing you to monitor the recording signal level of your program source. (Refer to the "SETTING RECORDING LEVEL" section of this manual.) To initiate recording from the Rec Standby mode, press the PLAY button. Pressing the REC/PAUSE button during actual recording engages the Rec Pause mode. To resume recording, press the PLAY button.

STOP: Press this button to stop the tape while in any mode.

#### MUTE SEARCH:

##### ● During Recording:

When the MUTE/SEARCH button is pressed at any time during recording, a 4-second blank interval is automatically recorded onto the tape (Auto Rec Mute mode), then the Rec/Pause mode is engaged immediately thereafter. In order to record a blank interval longer than 4 seconds, press the MUTE/SEARCH button and hold it down for the desired length of time.

After the button is released, the additional 4-second blank interval will also be recorded, then the Rec/Pause mode is engaged immediately thereafter.

\* When the MUTE function is operating, the REC/PAUSE indicator lights on and off.

##### ● During playback:

By pressing the ▶▶ button simultaneously with the MUTE/SEARCH button, the tape will advance to the beginning of the next section and begin play.

By pressing the ▶▶ button simultaneously with the MUTE/SEARCH button, the tape will rewind to the beginning of the current section and begin play.

## ⑩ DOLBY NR selector

### OFF:

Set to this position if no noise reduction is desired.

In the OFF position, signals do not pass through the noise reduction circuits and are output unprocessed.

### B and C TYPE:

When playing tapes encoded with Dolby NR or making recordings (of sources except FM, see MPX ON and OFF) to be encoded with Dolby NR, set the selector to the desired type of Dolby noise reduction; B or C TYPE MPX OFF.

- Dolby noise reduction is an extremely effective method of reducing undesirable background hiss on tapes. This unit incorporates both Dolby B NR and the newer Dolby C NR systems. Dolby C NR is approximately twice as effective as Dolby B NR.
- When playing back any tape (even a recording of an FM broadcast) encoded with Dolby B or Dolby C, set the selector to the B TYPE MPX OFF or C TYPE MPX OFF, respectively.
- Dolby and the double D mark are trademarks of Dolby Laboratories Licensing Corp. Dolby noise reduction system manufactured under license from Dolby Laboratories Licensing Corp.

### MPX filter ON and OFF:

When recording from FM stations, set the selector to the Dolby NR desired and also set it to the B or C TYPE MPX ON position. However, when not recording FM broadcasts but using Dolby NR, set the selector to the B or C TYPE MPX OFF position.

- FM stations transmit a 19 kHz pilot signal in addition to the broadcast program. Sometimes this pilot signal may leak into the audio output depending on the tuner and broadcast conditions. Since the 19 kHz pilot signal is undesirable, activating the MPX filter will effectively filter out the signal.

## ⑪ REC LEVEL and BALANCE controls (DECK A only)

**REC LEVEL:** This control is used to adjust and set the recording level.

Turning it clockwise increases the recording level, and turning it counterclockwise decreases the recording level.

**BALANCE:** This control is used to balance the recording levels of the left and right channels. Turning it clockwise decreases the left channel's recording level. While turning the control counterclockwise decreases the right channel's recording level. Normally, adjust this control so that left and right recording level indicators peak to the same reading.

## ⑫ DUBBING buttons and indicators

Press this button to dub the tape from DECK B to DECK A. For high speed dubbing, press the HIGH button. For high quality dubbing, press the NORM button. The corresponding indicator lights up.

## CONNECTIONS

### ■ REAR PANEL CONNECTORS (See Fig. 2.)

Make sure that power to both the deck and your amplifier/receiver are turned off before making any connection.

The White plug on the paired connecting cables corresponds to the Left channel and the Red plug corresponds to the Right channel. The LINE OUT/PLAY jacks on the deck should be connected to the Tape PB (Playback/Input) jacks on your amplifier/receiver, and the LINE IN/REC jacks on the deck should be connected to the Rec Out (Rec/Output) jacks on your amplifier/receiver. Make sure that the left and right channel connections are properly made, and that the plugs are inserted firmly.

Connect the power cord to an AC wall outlet or to an AC outlet on the rear panel of your amplifier/receiver (if provided).

With the REMOTE CONTROL terminal on the rear of the deck, system remote control through the amplifier/receiver with RS mark is possible.

Connect the terminal to the amplifier/receiver with the flat cable supplied to the amplifier/receiver. For details of operation, refer to the Owner's Manual of the amplifier/receiver.

## CASSETTE TAPES

### ■ CASSETTE TAPES

There are many different types of cassette tapes available, however, they all conform to standard specifications so any brand may be used with the deck.

- YAMAHA does not recommend the use of 120 minutes length cassettes since the extreme thinness of the tape makes them susceptible to mechanical and recording problems.

#### • Classification of Cassettes Tapes by Formulation

Cassette tapes are available in four basic types depending on their formulation, or type of magnetic material and manufacturing process. These four types are commonly known as Normal (Type/NORM), Chrome (Type II/CrO<sub>2</sub>), Ferrichrome (Type III/FeCr), and Metal (Type IV/METAL), and they each require specific tape deck adjustments for optimum performance.

### ■ AUTO TAPE SELECTOR DETECTION SLOTS (See Fig. 3.)

The deck has a built-in Auto Tape Selector which automatically adjusts for the proper bias, level and equalization according to the tape formulation — all you have to do is load a cassette and the Auto Tape Selector does the rest.

The Auto Tape Selector determines what type of tape is loaded by sensing detector slots in the top of a tape shell. Each tape formulation has its own characteristic hole markings which has been standardized by the tape industry.

- Early model Metal (Type IV/Metal) tape formulation cassetteshells do not have the slots for Auto Tape Selector operation. As a result, early model Metal type tapes recorded on another deck will be played back with the deck at the Chrome (Type II/CrO<sub>2</sub>) settings. YAMAHA does not recommend recording with this kind of tape on the deck.
- The deck does not have the required setting for Ferrichrome (Type III/FeCr) tape, since this tape formulation is not widely used. Should you use a Ferrichrome tape, it will be recorded and played back at the Normal (Type I/NORM) settings. And this will result in an unnatural high frequency emphasis.

## ■ PROTECTING YOUR RECORDINGS (See Fig. 4.)

All cassette tapes are provided with erasure protection holes to prevent accidental erasure of recorded contents. There is a small tab covering the hole on each cassette, and it should be broken off after recording a tape. Without this tab covering the hole, it is impossible to record onto that tape. Thus, you can safely protect a recording for as long as you wish without fear of accidental erasure. Should you wish to use a cassette tape protected in this way for recording, simply covering the hole with adhesive tape will permit erasure and re-recording.

- \* When using Chrome (Type II/CrO<sub>2</sub>) or Metal (Type IV/METAL) tapes, make sure you do not cover the hole intended for the Auto Tape Selector operation.

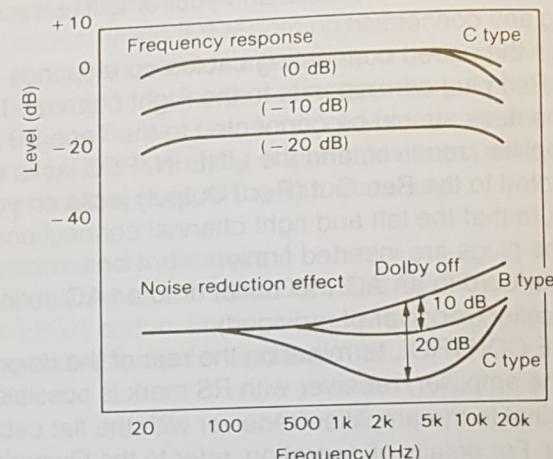
## ■ TAKING UP SLACK IN THE TAPE (See Fig. 5.)

As a precaution against tape entanglement and damage, before inserting cassettes into the deck, remove any slack in the tape. This is accomplished by inserting a pencil, pen or similar object into one of the spools and gently winding it until all the slack is removed. You do not have to wind it too tightly. Be careful not to touch the tape part itself. It is very delicate and touching it may damage the tape and its recorded contents.

## ■ STORING CASSETTES

After putting a cassette tape back into its case, store in a location away from exposure to direct sunlight, humidity, high temperatures, and magnetic fields (away from television sets, speakers, etc.). High temperatures and humidity will damage the tape itself, while exposure to magnetic fields may cause a loss of recorded material. Avoid touching the tape surface with your fingers, since dirt or finger oil will contaminate the deck's heads.

## ■ DOLBY NOISE REDUCTION



With cassette tapes, the most noticeable form of noise is high frequency hiss. To reduce this hiss noise, the unit is equipped with the newer Dolby C noise reduction system in addition to the older Dolby B NR. Either type of noise reduction may be selected with the DOLBY NR selector.

The older Dolby B system is still very handy when playing back that extensive library of Dolby B encoded tapes as well as recording tapes that will be played back on a system which offers only this kind of noise reduction system (some car, portable, and older cassette decks).

Dolby B NR has a noise reduction effect of about 10 dB in the high frequency range. The corresponding effect with Dolby C NR is about 20 dB, but this is over the entire range where the human ear is most sensitive to noise (2 kHz to 8 kHz). Dolby C NR also improves the tape's MOL (Maximum Output Level).

## RECORDING AND PLAYBACK

### RECORDING (DECK A only)

Dolby C NR has two new circuits: a spectral skewing circuit and an anti-saturation network. By improving the saturation level of the tape, it is possible to prevent high frequency loss, encode/decode error, etc., and improve dynamic range, signal-to-noise ratio, and make it easier to set the recording level. With Dolby C NR, it is possible to achieve the same noise reduction effect at both high and low signal levels and to set the recording level to a point where negative side effects are eliminated. Also, by expanding the operating frequency range to two octaves more than that of Dolby B NR, overall noise balance is obtained and the system also becomes effective against high frequencies from the power supply transformer.

The graph shows the frequency response and the noise reduction effect of recording and playback with Dolby B NR, and Dolby C NR. The noise reduction effect of Dolby C NR is larger — approximately 20 dB.

Dolby noise reduction is a 2 part process that acts both on recording and playback; be sure that the DOLBY NR selector is set to the same position during record and play.

- \* Tapes encoded with Dolby NR should be decoded with their respective systems. Nevertheless, a Dolby encoded tape can be played back without decoding (and vice versa) with no harm to the recording.
- \* Noise in the source material cannot be reduced with the Dolby NR system.

1. Make sure that the TIMER switch is set to the OFF position, then turn on the POWER switch.
2. Press the DECK SELECTOR so that A indicator lights up.
3. Open the cassette compartment by pressing the EJECT button and load a cassette tape in DECK A with the exposed tape face down.
4. Select DOLBY B or C NR with DOLBY NR selector.
5. Press the REC/PAUSE button to engage the Rec Standby mode.
6. Play the program source to be recorded, and adjust the recording level using the REC LEVEL control.
7. Press the PLAY button to start recording.
8. To temporarily stop the recording, press the REC/PAUSE button. To resume recording, press the PLAY button again.
9. To stop recording, press the STOP button.
10. When MUTE/SEARCH button is pressed during recording, a 4-second blank interval is automatically recorded on the tape, then the Rec Pause mode is engaged.
- When the  button is pressed during recording, the tape is automatically rewound to the point at which the recording has been started (Rec Return).

### ■ SETTING RECORDING LEVEL

Proper setting of the recording level is crucial in making a quality recording. If the recording level is set too high, the recording will sound distorted and muffled. If the recording level is set too low, the full recording capabilities of the tape will not be reached and the recording will sound faint and too quiet. The key in making a good recording is, therefore, to adjust the recording level as high as possible while still avoiding distortion.

Press the REC/PAUSE button to engage the Rec/Standby mode, and play a section of the program to be recorded. Watch the PEAK Level meters and adjust the REC LEVEL control so that the average meter reading is between -5 dB and +3 dB, with occasional peaks no higher than +6 dB.

## ■ DUBBING (DECK B to DECK A)

1. Make sure that the TIMER switch is set to the OFF position, then turn on the POWER switch.
2. Open the cassette compartments by pressing the EJECT buttons and load a recorded cassette tape in DECK B and blank cassette tape in DECK A.
3. Press the NORMAL or HIGH DUBBING button according to the desired dubbing speed. Dubbing starts automatically.
4. To stop dubbing, press STOP button.

When DECK A finishes recording, DECK A and DECK B stops at the same time.

When DECK B finishes playing, DECK B stops and DECK A stops after providing a blank section of about 4 seconds.

- \* During dubbing, the Dolby NR is automatically set to OFF and the recorded tape can be dubbed as it is. (When the tape to be dubbed is recorded with Dolby NR, the Dolby NR effect is also dubbed.).

### NOTE:

Please check the laws on copyright in your country to record from records, discs, tapes, radio, etc.

Recording the prerecorded tapes or other published or broadcast material may infringe copyright laws.

## PLAYBACK

1. Make sure that the TIMER switch is set to the OFF position, then turn on the POWER switch.
2. Open the cassette compartment by pressing the EJECT button and load a recorded cassette tape.
3. Select the deck to be operated, with DECK SELECTOR.
4. For tapes recorded with Dolby NR system, set the DOLBY NR selector.
5. Press the PLAY button to start playback.
6. To stop playback, press the STOP button.

## ■ RELAY PLAY

1. Make sure that the TIMER switch is set to the OFF position, then turn on the POWER switch.
2. Open the cassette compartments by pressing the EJECT buttons and load a cassette tape to be played first in DECK A and a cassette to be played next in DECK B.
3. Press the DECK SELECTOR so that A indicator lights up.
4. Press the PLAY button to start relay play. When cassette loaded in DECK A reaches its end, DECK A automatically stops and DECK B starts playing.
5. To stop relay play, press the STOP button.

- \* For tapes recorded with Dolby NR system, set the DOLBY NR selector.

## **TIMER RECORDING/PLAYBACK (See Fig. 6.)**

When using the TIMER switch in combination with a commercially available audio timer, it is possible to make recordings and initiate playback at any time automatically by presetting the deck in advance.

### **Timer Recording (DECK A only)**

1. Make sure that all power cord connections between the timer and amplifier are properly made. No change in any of the other connections between deck and amplifier, etc., is necessary.
2. After turning on the power to each component, select the station on your tuner which you want to record and turn down the volume on your amplifier. This will have no effect on the recording signal level. Remember to set the proper recording level.
3. Set the timer to the desired times. It is advisable to set the timer to begin recording slightly before the actual recording time, and end slightly after the actual recording time, so that you leave some room for later editing.
4. Set the TIMER switch to the REC position.
5. The timer will send power to the amplifier, tuner and deck at the preset time, turning all the components on and initiating the recording mode.

### **CAUTION:**

If the tape cannot be ejected after timer recording, set the TIMER switch to OFF and the deck's POWER switch to ON; the tape can then be ejected.

### **Timer Playback**

1. All connections are the same as for timer recording.
2. Turn on the amplifier and adjust the volume and Tone controls.
3. Set the input mode selector of your amplifier to the Tape mode.
4. Set the timer to the time you wish to start and stop playback.
5. Set the TIMER switch to the PLAY position.
6. At the preset time, the timer will turn power on to the amplifier and tape deck and begin playback. It will shut power OFF, at the preset time as well ending playback.

\* When cassettes are loaded in both DECK A and DECK B, the unit enters the relay play mode and DECK A starts playback first.

## **MAINTENANCE**

### **■ CLEANING OF TAPE PATH**

The continued high quality performance of your deck is dependent upon regular periodic cleaning of the heads, capstan, pinch roller, and all surfaces over which the tape travels. Normal use will see an accumulation of dirt and dust on the heads, capstans, and pinch rollers. This can lead to poor sound quality, drop outs (intervals with no sound), unsteady tape speed, loss of high frequency response, etc.

We recommend commercially available cassette and fluid type cleaners.

### **■ DEMAGNETIZATION**

After 20-30 hours of use, enough residual magnetism will have built up on the heads to cause poor high frequency reproduction. At this time you should use a commercially available head demagnetizer.

- When demagnetizing the heads, be sure to follow the instructions of the head demagnetizer carefully.

### **■ CLEANING THE CABINET**

Clean the cabinet with a soft cloth lightly moistened with a mild detergent. Never use solvents such as benzine, acetone, alcohol, etc. for they may damage the deck's finish.

## SPECIFICATIONS

<b>Track Configuration</b>	4 track, 2 channel recording and playback stereo cassette tape deck
<b>Motor</b>	DC servo motor x 2
<b>Heads</b>	
<b>Rec/play head</b>	Hard Permalloy x 2
<b>Erase head</b>	Double Gap Ferrite
<b>Wow and Flutter</b>	
<b>W.RMS</b>	No more than 0.08%
<b>W.Peak</b>	No more than $\pm 0.15\%$
<b>Fast Winding Time</b>	About 100 seconds (C-60)
<b>Signal-to-Noise Ratio</b>	
<b>(Dolby off)</b>	More than 58 dB
<b>(Dolby B on)</b>	More than 66 dB
<b>(Dolby C on)</b>	More than 74 dB
<b>Frequency Response (-20 dB)</b>	
<b>Normal Tape</b>	20 — 16,000 Hz, $\pm 3$ dB
<b>CrO<sub>2</sub> Tape</b>	20 — 17,000 Hz, $\pm 3$ dB
<b>Metal Tape</b>	20 — 18,000 Hz, $\pm 3$ dB
<b>Harmonic Distortion</b>	No more than 1.0%
<b>Channel Separation</b>	More than 40 dB
<b>Crosstalk</b>	More than 55 dB

<b>Input Sensitivity/Impedance</b>	50 mV/50 k-ohms
<b>Line</b>	
<b>Output Reference level/Load impedance</b>	
<b>Line</b>	360 mV/1.2 k-ohms
<b>Phones</b>	0.3 mW/8 ohms
<b>Power Requirements</b>	
<b>Canada model</b>	AC 120V, 60 Hz
<b>Europe model</b>	AC 220V, 50 Hz
<b>U.K. and Australia models</b>	AC 240V, 50 Hz
<b>General model</b>	AC 110/120/220/240V, 50/60 Hz
<b>Power Consumption</b>	18W
<b>Dimensions (W x H x D)</b>	435 x 112 x 271.5 mm (17-1/8" x 4-3/8" x 10-11/16")
<b>Weight</b>	4.5 kg (9 lbs. 15 oz.)

Specifications subject to change without notice.

## TROUBLESHOOTING

When your cassette deck fails to function properly, before assuming it is faulty, check it according to the following troubleshooting list. It details the corrective action you can take yourself without having to call a service engineer. If you have any doubts or questions, get in touch with your nearest Yamaha dealer.

Symptom	Cause	Remedy
Tape doesn't move in recording or playback.	<ul style="list-style-type: none"> <li>Power plug not properly plugged in.</li> <li>DECK SELECTOR not properly set.</li> </ul>	<ul style="list-style-type: none"> <li>Reinsert plug properly.</li> <li>Set the DECK SELECTOR correctly.</li> </ul>
REC/PAUSE button fails to function.	<ul style="list-style-type: none"> <li>No cassette tape loaded.</li> <li>Protective tab broken off.</li> </ul>	<ul style="list-style-type: none"> <li>Load a cassette tape.</li> <li>Change to different tape, or cover the hole remaining after removal of tab with adhesive tape.</li> </ul>
Sounds become faint and sometimes inaudible.	<ul style="list-style-type: none"> <li>Heads are dirty.</li> <li>Heads are magnetized.</li> <li>Worn out or poor quality tape.</li> </ul>	<ul style="list-style-type: none"> <li>Clean head using cleaning tape.</li> <li>Demagnetize head using head demagnetizer.</li> <li>Change to different tape.</li> </ul>
Playback sound are poorly balanced.	<ul style="list-style-type: none"> <li>DOLBY NR selector not properly set.</li> </ul>	<ul style="list-style-type: none"> <li>Playback in the position in which was recorded.</li> </ul>
Recorded sounds are distorted.	<ul style="list-style-type: none"> <li>Recording level is too high.</li> </ul>	<ul style="list-style-type: none"> <li>Check input level with meter and use lower recording level when recording.</li> </ul>
Excessive noise.	<ul style="list-style-type: none"> <li>Heads are dirty.</li> <li>Heads are magnetized.</li> <li>Worn out or poor quality tape.</li> <li>Connection(s) improperly made.</li> <li>Affected by external electrical noise.</li> </ul>	<ul style="list-style-type: none"> <li>Clean head.</li> <li>Demagnetize head with head demagnetizer.</li> <li>Change to better tape.</li> <li>Check input and output connections and reinsert properly.</li> <li>Move away from electrical appliances (TV, light, electric blanket, etc.)</li> </ul>
Excessive wow (Wavering of the sound).	<ul style="list-style-type: none"> <li>Dirty capstan, pinch roller, etc. or poor tape.</li> <li>Tape is unevenly wound.</li> </ul>	<ul style="list-style-type: none"> <li>Clean capstan, pinch roller, or change to better tape.</li> <li>Rewind tape.</li> </ul>
Fails to record.	<ul style="list-style-type: none"> <li>REC LEVEL control too low.</li> <li>Protective tabs broken off.</li> </ul>	<ul style="list-style-type: none"> <li>Adjust REC LEVEL control.</li> <li>Change tape or cover protective hole with adhesive tape.</li> </ul>

# YAMAHA

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